

# VENICE AS PEDESTRIAN CITY AND TOURIST MAGNET

## MASS EVENTS AND ORDINARY LIFE

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### Abstract

*In Venice the famous network of pedestrian foot-ways deserves attention and research since has to face very often mass events. Even the ordinary mobility has peculiar needs. The efficiency of main road and rail transportation infrastructures and of the principal hub of modal interchange, relays on the service quality of the pedestrian infrastructure in the old city. This is matter for an original investigation.*

**Keywords:** *venice, pedestrianicity, tourist magnet, mass events*

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### Venice as a pedestrian paradigm

Most Planning handbooks show Venice as a fascinating paradigm of the modern ideal city, where everybody feels free to move and it is easy to have social contacts for utilitarian, cultural or leisure experiences. The old City is often proposed to demonstrate, in terms of space schemes and of mobility management, how our contemporary cities should be to get attractiveness, efficiency and liveability.

In the years this idea has become a sort of a common place.

Indeed the pedestrian network is special and almost independent from the canals network, primarily reserved to boat-buses and other kinds of power-boats. No usual urban inconveniences are reported in old Venice since no crossing is needed, but bridges, and punctual connections provide modal interchange in well chosen strategic points. So along *calli, rive* and *campi* the urban lively mix regards only pedestrians while, on the other side, this happy public open space is continuously served by water transport, and fed and drained to the background by rail and road.

### Venice as a pedestrian paradox.

But no handbook or paper reports about the difficulties that Venice faces several times per year, when the *acqua alta* raises and large parts of the pedestrian network and most of ground floors are flooded. Apart of picturesque and curiosity for unhurried tourists, this means for all that accessibility to most of trade, offices and even water transports, is unreliable, difficult or impossible. The same troubles affect most of main tourist attracting areas or monuments. These phenomena are indeed predictable by regular forecasts, but no serious solution till now was found.

The paradox is that Venetian mobility faces similar mobility difficulties -again several times per year - when exceptional crowds of tourists “flood“ the old City and similarly produce/undergo critical situations in general mobility to reach main business and the most visited areas by tourists.

This occurs in case of special mass events, when some thousands of visitors (some 60-70.000 or more per day) come to the old City and move in and out, waving from the modal interchange hubs ( Rail and Road Terminus) to the main attractors deep in the core of the urban fabric.

Most of these extraordinary crowd conditions are also well predictable, since big mass events are planned yearly and advertised by media worldwide. Several measures to sustain the major impacts are also prepared with care by Municipality, although not always they showed to be enough or on time.

More and more in the last decade these uneasy conditions occurred also out of the planned calendars.

A sunny weekend in Spring or Fall, can suddenly take to Venice thousands of extra visitors: mostly day-commuter tourists. Then in “peak hours” the congestion starts and grows step by step in a number of well known bottlenecks of the city that the variety of local space pattern generate here an there.

The same happens in most spaces next to main attractors and around the hubs of modal interchange. Consequently during these events of mass concourse, both planned or extemporany, Venice might result less happy and amusing than expected, or even might become uncomfortable and critical.



*1 - A glimpse of the typical Venice network of foot-ways.*

And this happens the more that the sustainability limits of the old pedestrian network and of the whole local mobility system are attained or overwhelmed. Which now is not rare, nor unknown.

So it comes now straight into public interest to know more about the nature of “ordinary” walking conditions in old Venice and to say more on these occasional but repeated “extraordinary” difficulties. It is urgent to investigate the possibility of preventing and eliminate this kind of pitfalls by proposals of sustainable planning and management.

First for this purpose it is necessary to quit the common idea that pedestrian mobility is “easy” and intuitive just because everybody is likely to organize his City displacements and decide whether walk, stroll or stay with no apparent problem. In facts this Venetian speciality occurs only in the best ordinary conditions, but not always and not for all.

Second, there is need to carry on a scientific investigation about both qualitative and quantitative aspects of the pedestrian mobility as such in the urban fabric and in relationship with the general transportation web, in the city and in the background as well.

### **Qualitative features of pedestrian mobility.**

In old Venice residents and visitors are likely to share the same pedestrian infrastructural network much more than in any other Italian city of high-standing cultural heritage.

For sure the most reputed sites are a very common target and the most advertised events are the “must” or at least among the main explicit reasons of the visit for all tourists.

How to get to the desired destination, walk or bus-boat, form the main city “gates” such as Piazzale Roma, S. Lucia Rail Station and Riva degli Schiavoni quay, looks simpler than in any conventional city, but on the other side it reveals much more complex implications.

Just beyond the main thresholds Venice appears a charming labyrinth with almost no intuitive land marks to orient or confirm pedestrians’ walk. Sooner or later foreign and resident pedestrians will follow -willingly- other pedestrians to keep all together on main paths: this flow-walking in both directions -in/out- is more efficient to find the right way than the official signposting.

Indeed residents and regular commuters know their usual walk-ways very well, while visitors do not have the same acquaintance and their motivation to trip into the City is likely to be also different.

In the bulk of all pedestrians different options about the path choice, in principle this would suggest a variety of behaviours and different uses of local footways network. In main Italian tourist cities it is so, and consequently residents and visitors incidentally share the same public open spaces, but there are rather often tourist areas and citizens areas, with little social interchange.

But this fact in Venice has special characters. The basic reason is that the structure of the pedestrian network of Venice obeys to an hidden hierarchy, not depending on the width or the straightness of the infrastructures, which are the features that people is used to evaluate at glance.

On the contrary in this puzzle of short glimpses and short trunks, the best possible pedestrian path depends on the functional degree that, site by site, local links allow to connect different parts (originally little islands) forming the districts and the City. There are no apparent rules or schemes, but just human size and a local common knowledge to manage both for everyday or special conditions.

The pattern of main and secondary paths, in each urban sector is unique and by its inner hierarchy permits almost no alternative to reach the neighbouring districts, which since ever are secluded by canals. Thus, at City scale, because of their sequel and continuity, only main paths join and form an “arterial” major network, the unique path allowing continuity through districts and able to bridge the Grand Canal, while all minor paths are tributary and subaltern. Minor walkways are capillary rooted into their district, to play the role of infrastructure and of social space for their respective neighbourhoods.



## ***2 - A special graph studied to plot GPS recorded surveys about pedestrian paths during mass events.***

So in Venice City all by-passers, residents and visitors, have to share the same pedestrian arterial network, and to use the same interchange points (water, rail and road) in any occasion and under all possible circumstances.

Exceptions are possible only at district scale, but this doesn't affect tourists.

The richness of the heritage general network results then subject to the rigid City-wide trip scheme of the arterial network and shows little or no flexibility of path planning and of visitors capacity.

This means that different motivations to trip in the City and different behaviours have to share the same public spaces, the same bottlenecks, and the same “jams” under all possible mobility conditions.

This justified on site two campaigns of monitoring to follow visitors in occasion of main mass events to know more about their behaviours. This was made by GPS recorders, to test also the potentialities of this technology in a very critical context like Venice, by static counters and by sample pictures.





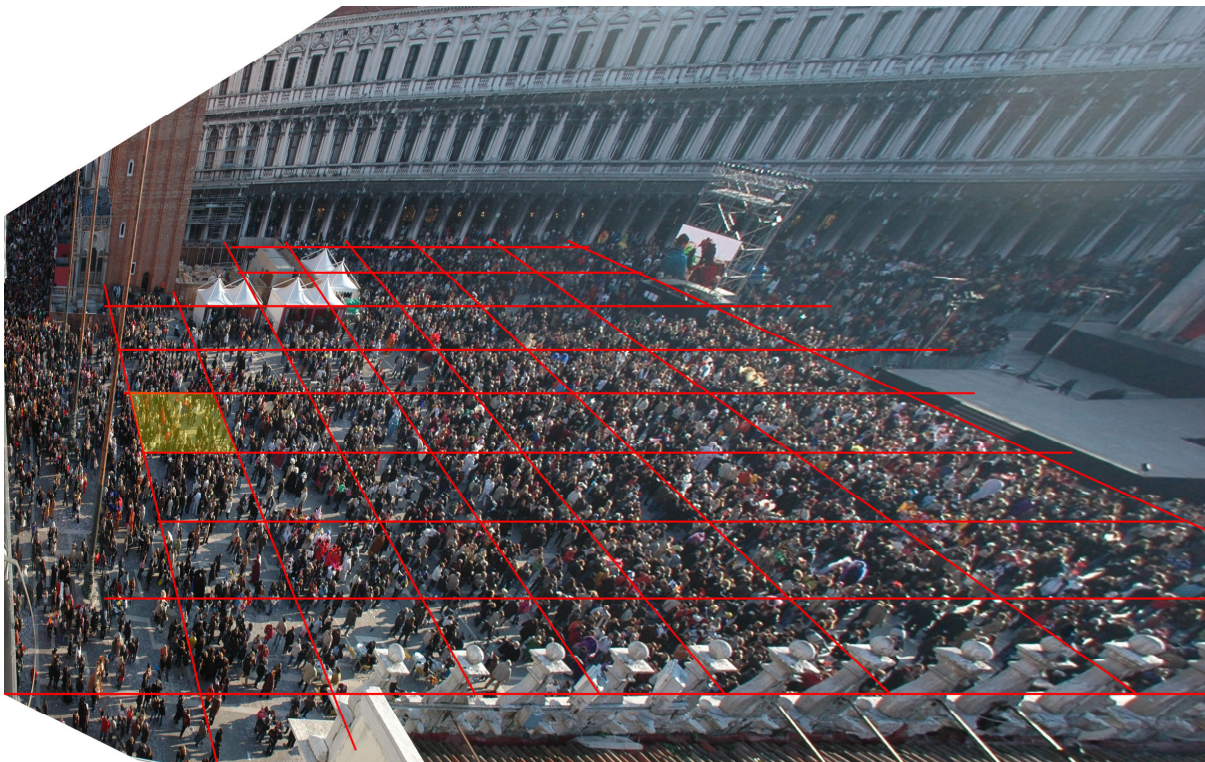




**5 - Scheme of GPS recorded main crowd flows during Carnival 2008 in the entire City.**

#### **Crowd density and pedestrian mobility.**

The qualitative conditions of pedestrian mobility depend on the density of persons in a given space unit, and also depend on size and shape of the space: linear, concentric, large, narrow, flat or stairs. Linear spaces, such as *calli* and *rive* allow relatively simple estimates of density, while large open spaces, like St. Mark's Square, which are also assembled in a sequence of various adjoining pedestrian areas, needed a special preparatory work, both for quantitative and qualitative estimates. This kind of work comes out from static and moving pictures made from the Clock Tower, referred to a special grid linked to the architectural modules of the Procuratie Nuove by Jacopo Sansovino.



**6 - Architectural references to set up the density sample grid.**



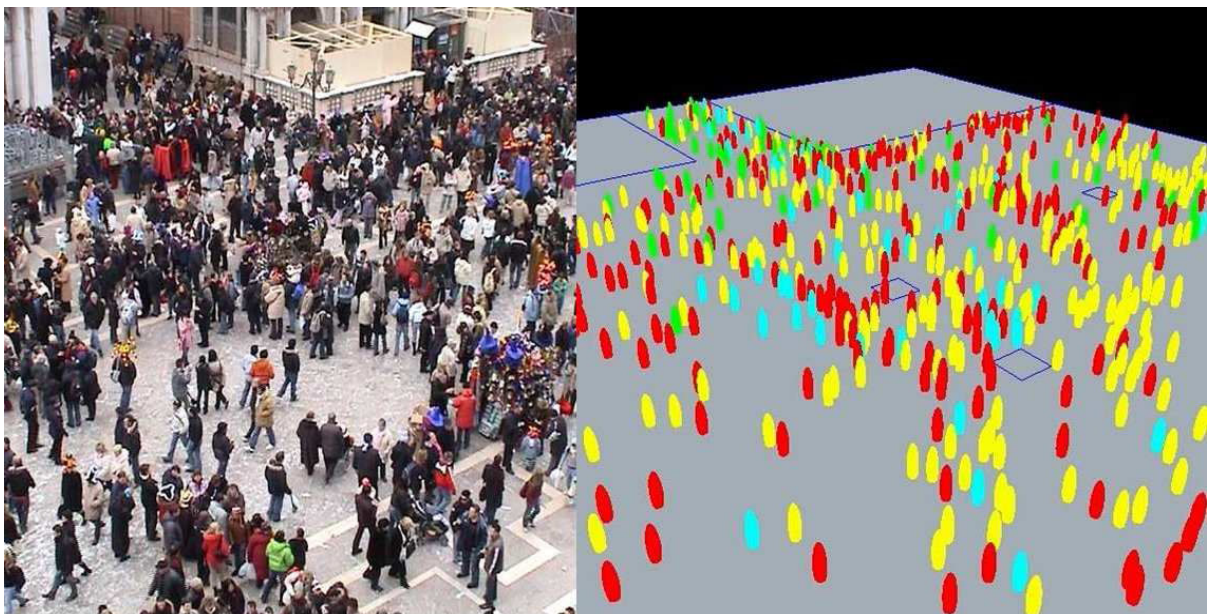


**7, 8 - Sample density cells to estimate the number of persons**

Square crowd-cell samples allow to estimate, in different times of the day, the number of present people while a detailed analysis of hours of recorded movies allows to describe the pedestrian movements in a large and crowded environment.

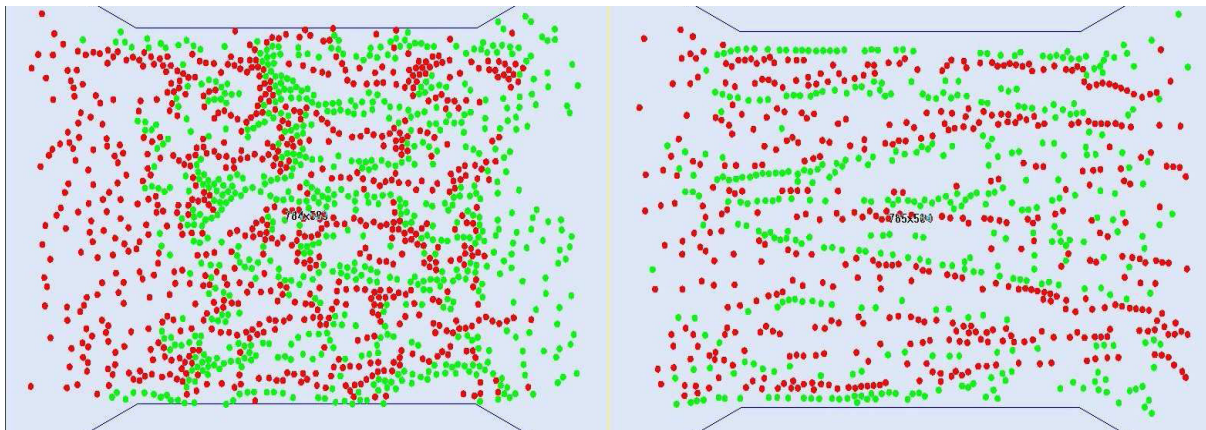
St. Mark's Place features a main longitudinal axis and the crowd of strollers, in this occasion more than the usual, are likely to prefer this dominating direction when moving, in sunshine or not.

In the square there are as well persons that just stay and do not care too much of their neighbours and of by-passers. So the social behaviour is variable in the turn of minutes.

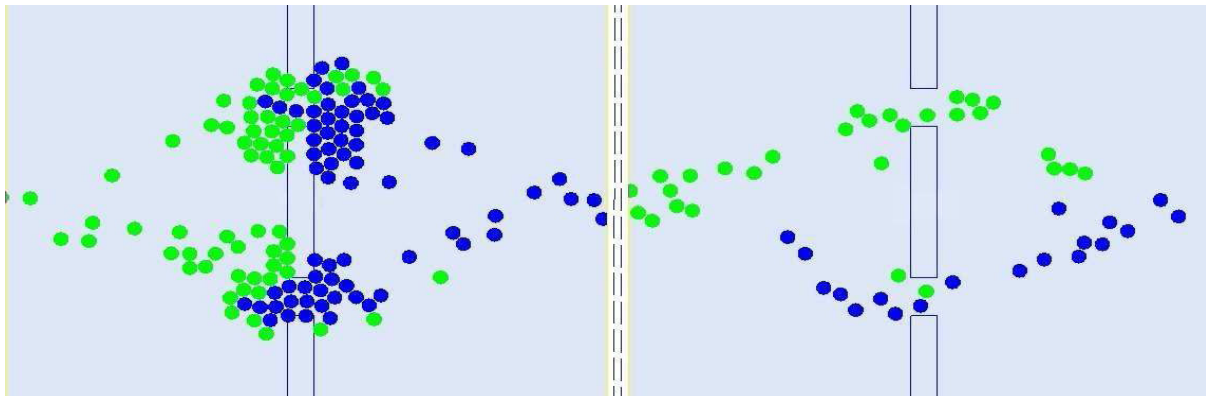


**9, 10 - Sample density cells to plot movements**

The same is reported about crowd flows. The more density increases, the more pedestrians become to be less scattered. When moving, they spontaneously join and form on site several narrow linear flows proceeding in opposite directions along the square's axis. This kind of informal organization reveals efficient and satisfactory, since each "party" is able to follow its trip and is not obliged to stay, or to queue. Obstacles, standing groups or material bottlenecks show the same attitude among pedestrians, and this occurs mostly when the by-pass or the threshold would impose to queue.



**11 - Patterns of pedestrian movements in wide spaces according to density.**



**12 - Patterns of pedestrian registered movements in a twin bottleneck.**

### **Quantitative aspects of pedestrian mobility .**

Since the number of residents in old Venice (some 60.000) and the daily number of visitors (60-70.000 commuters and tourists) are likely to be of the same size, the quantitative monitoring of Venice general pedestrian mobility (ca.100.000 pedestrians) is necessary and the local “general” “district” or “site” flows ought also be carefully and systematically sized, preferably everyday by means of a network of 20 established basic counter points, plus a few *ad hoc* mobile counter points.

To plan all this, the in/out flows were surveyed by our counters in 2008 at the most strategic City thresholds and showed that in case of mass events, i.e. on Carnival Tuesday top evening, there is still a partial compensation between residents getting out and incoming visitors.

But this is an imperfect balance although still sustainable.

The problems become dramatic in holidays and sunny weekends, when residents are on leave and in the City most of business and connected ordinary pubs and shops are closed.

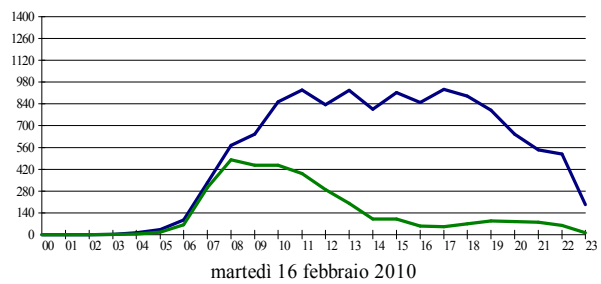
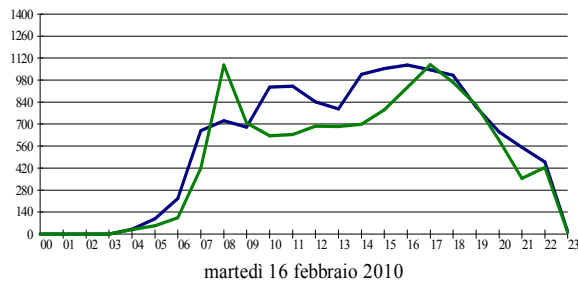
The old City that in everyday conditions can receive rather well up to 60/70.000 incomers (commuters and tourists) absorbing them like a sponge within the urban fabric, under these unplanned conditions amazingly shows difficulties to sustain the impact of crowds of 70.000 day-tourists or more. Around and over these figures the perception of Venice as a tourist “flooded” City is strong, and media always report with emphasis this kind of dramatic “unexpected” happenings.

But if we mind, this attitude of TV and press reporters is also part of the drama, or of the play.

The Municipality instead of limiting the number and the coincidence of several mass events in the same days, supports them officially more and more. No meaningful extra incomes are to be expected from day-tourists who have their pic-nic somewhere near monuments, squares or quays.

So why so many members of the local establishment look so happy with big crowds in old Venice? Because those masses are relevant for urban advertising, recently allowed on monuments of top attraction as long as they are “under restoration”. All reported pedestrian overcrowds or jams call new attention, new people and new advertisement’s business, but also discomfort and risks.





**13,14 - Pedestrian flow on Costituzione and Scalzi bridges on top Carnival day.**

Thus bottlenecks and bridges, whose strategic role in the pedestrian arterial structure is intuitive, in addition to the permanent campaign done by installed meters, need to be studied and monitored also by pictures and movies recorded from an elevated point of view. In this way it results possible to check the precision of electronic counters in their work under ordinary conditions, but also the visual analysis comes in as external tool never subject to pedestrian “jams” or other similar inconveniences such as wild occupation of the public space for little trade ,or stay or other unpredictable happenings.

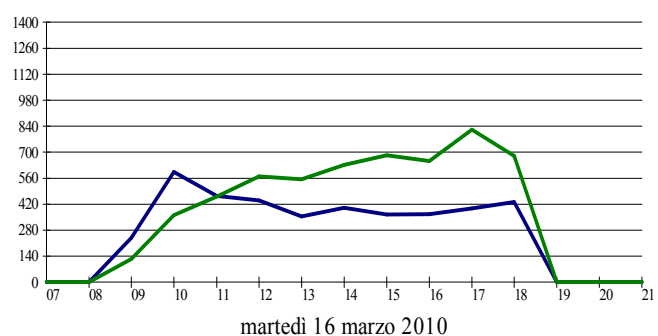
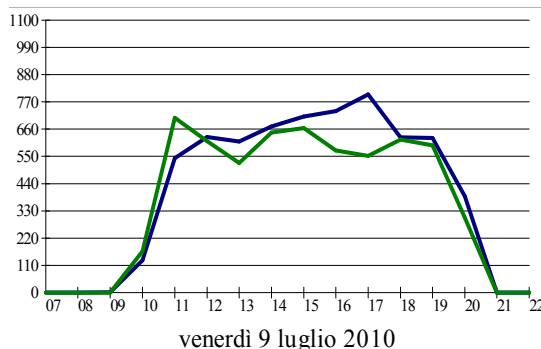


**15, 16 - Costituzione bridge: visual analysis and flow estimates.**

### Ordinary pedestrian flows.

Apart from the above mentioned big mass events, Venice lives everyday of its ordinary pedestrian flows, which are based on regular commuting from a wide metropolitan area in the background, depending on the top rank services and activities seated in the old City.

In turn, it is as well relatively strong the flow out of residents from the old City to the outer region.



**17, 18 - Ordinary flows on Commissario and Costituzione serving the main hub of transport**

Such a kind of ordinary flows, although more quiet and with less risk to attain or overwhelm the feared sustainability limits of mass events, are important to establish since now, the future guidelines for the best governance of pedestrian and general mobility in old Venice. This means not only residents', but also commuters and tourists, mobility all over the year, with special rules e.g. keep right in crowds.



A good example of rational survey to produce good forecasts about visitors flows is given, by the records of Peggy Guggenheim Museum. They record precise attendance figures that show potential visitors peaks and allow to suggest how to smooth them if and when necessary.

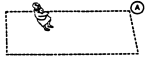
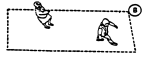
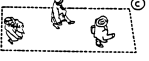



The same should be made regularly, following a rational standard protocol agreed by all public institutions and by all main trades in all fields seated in the inner City of Venice. The attendance data should ordinarily be related to transport data in the same days/months. So all necessary measures could be taken well in advance according a series of plans or even at once, having good information.

PGC Monthly Attendance Figures 2008		PGC Monthly Attendance Figures 2007		PGC Monthly Attendance Figures 2006	
Month	Attendance	Month	Attendance	Month	Attendance
January	17.640	January	18.131	January	16.323
February	21.937	February	20.305	February	21.439
March	33.400	March	29.883	March	28.262
April	36.877	April	42.470	April	44.726
May	37.044	May	35.548	May	37.950
June	28.880	June	36.693	June	33.543
July	30.806	July	33.695	July	32.975
August	31.151	August	34.558	August	34.115
September	31.366	September	33.967	September	36.923
October	36.841	October	40.847	October	40.213
November	26.830	November	31.652	November	30.207
December	14.090	December	20.896	December	19.041
<b>Total</b>	<b>346.862</b>	<b>Total</b>	<b>378.645</b>	<b>Total</b>	<b>375.717</b>

### 19 - Peggy Guggenheim Museum attendance figures (courtesy)

#### Users density and levels of service of the main pedestrian network

The most relevant parameter to take care in all cases in the old City is the general and site pedestrian density, mostly along sensitive places like arterial paths, strategic bridges and well known or potential bottlenecks. Long term predictions, short term forecasts and now-casting about the real conditions of the pedestrian network are possible and sure on the base of established technical tools of transport planning such as the Service Level classification, similar to the well known parameters originally used in highways and motorways.

Level Service level	Flow Character	Pedestrian Space [m <sup>2</sup> /ped]	Average Speed [m/min]	Pedestrian Flow [ped/min/m]	Maximum Capacity [%]	Perceived on site Conditions
<b>A</b>	free	12	80	7	8	
<b>B</b>	free less space	4	75	23	28	
<b>C</b>	regular	2	73	33	40	
<b>D</b>	conditioned	1,5	70	49	60	
<b>E</b>	maximum capacity	0,5	45	82	100	
<b>F</b>	pedestrian jam	< 0,5	< 45	variable	variabile	

#### 21- Service level classification, speed/space and flows/space diagrams to evaluate Venice footways efficiency

Density is also the basic parameter that determines, as a matter of fact or as a forecast, the capacity of an arterial pedestrian infrastructure or of a bridge in ordinary and/or in critical conditions. No doubts that this capacity, increases until a certain point and then turns backwards when density influences negatively the pedestrian walking speed. Indeed it is possible to establish the basic conditions in terms of space need per person to allow pedestrian movements, and the consequent potentials, either positive or negative in terms of speed and comfort. The most reasonable purpose for all responsible Boards and Administrations is first to prevent critical or risky conditions and to assure always the best possible Service Levels of to the general footways network

This means that the regular capacity of all hubs of modal interchange and the regular capacity of the pedestrian arterial paths in the City are the independent parameters to which all other wills, programs, desires or policies should be submitted.

The repeated concentration of mass events already attained more times per year, and trespassed the sustainability limits. Indeed, after the shame of the Pink Floyd concert in St. Mark's Square, that everybody should remember as a disaster, there is no reason of public interest to do so or to allow something similar again.

This argument is likely to capsize the ongoing way of doing, where the centres of decision making and control are more and more plural, and not enough coordinated, while the central monuments and spaces are more and more turned into supports for the advertising business.

## **Conclusions**

In conclusion the in/out waves of visitors, that are likely to become increasingly mass movements at the same time stimulated by mediatic spurs and "pumped" by powerful transport facilities both existing and under development, today reveal a weak general governance and make us fear several potential negative outcomes if no unitary and rational management will affirmed definitely.

Nowadays private mecenates can decide to establish in short time museums or galleries in Venice and to transform consequently entire districts, where the available capacity to host people is limited or scarce, conditioning public powers and services to run after needs.

A similar trend is also evident looking at recent decisions by public Administrations to move several of the most important institutional services within the inner City changing their location: i.e the Regional Government Headquarters (thousands of jobs plus thousands of administrative visitors per day) re-using the old Railway Department (formerly just a few jobs and almost no visitor).

In the same area, just beyond the Calatrava bridge, the Court of Justice is also opening its premises to substitute the dismissed State Tobacco Factory and to call here thousands of jobs and thousands of professionals and concerned public.

Both settlements started in the last two years, and in term of few months will be over, driving new heavy urban loads just in the deep core of the main urban interchange hub. Here overcrowding must be carefully avoided and the growing concentration of strategic targets should look vulnerable under many meaningful respects.

Politicians, planners, traders and grass-rooters, know that the delicate urban balances of Venice are soon altered by transformations much less important and impacting than the over mentioned ones.

The fact that almost no new buildings is being made and that material changes appear at first glance very little, does not mean that the puzzle of the ongoing functional transformations will be light and sustainable. Not at all. No other impact might be stronger and upsetting.

In Venice the recent devolution of urban affairs to different powers and autonomous Corporations and the trendy deregulation style in urban programmes is likely to generate unknown difficulties in the near future.

In facts beside the wrong idea that pedestrian space is "easy", another wrong idea has to be erased and this is to believe that in old Venice the urban puzzle "never changes" and never will change.

We must change similar attitudes right now and come back to the old principle that transforming before planning is already a basic mistake.